John Jameson: Good afternoon everyone and welcome to this afternoon's webinar for members of the healthcare sector of the Better Buildings Alliance. My name is John Jameson. I'm the account manager for the healthcare sector. Our goal today is to provide you with an overview of Better Buildings Alliance tools, resources, and activities that will help you accelerate energy efficiency in your building portfolio.

Before getting started, there are a couple housekeeping items I'd just like to address. We will be answering questions at the end of the webinar. In order to submit questions, you may enter them at any time to the question pane in the webinar panel on the right-hand side of your screen. And following the webinar, we will be sending a slide deck and a link to the recording to each of the participants.

And joining me to present today, we have Kristen Taddonio, Better Buildings Healthcare Sector lead at the Department of Energy. Andrew Schulte of ICF International to give us market solutions, team updates, and Andrew Mitchell, the technology solutions team lead, also at the Department of Energy. If you have any questions regarding the information we will review today that is not addressed in the Q&A period, please don't hesitate to reach out to anyone listening on this slide for more information.

And we will begin today with exciting Better Buildings Alliance updates, followed by an overview of the technology solutions activities, and we'll use some time at the end to use some market solutions updates as well. So at this point, I'd like to turn it over to Kristen Taddonio at the Department of Energy to provide some programmatic updates. Over to you, Kristen…

Kristen Taddonio: All right. Thank you very much, John. Let's go to slide four, please. All right. And looking at the attendees that we have with us today, I see a lot of familiar names, and some new ones. So I want to begin by just giving a brief overview about what the Better Buildings Alliance is, and how it fits into the overall Better Buildings Initiative.

The Department of Energy here at the commercial buildings program supports the Better Buildings Imitative, which is a broad based effort across the federal government to try and increase the energy efficiency of both government buildings and private sector buildings, 20 percent by 2020. The long-term goal was getting to 50 percent reduction in energy rates by 2030. So the Better

Buildings Alliance is really a key part of these efforts, started in 2008 with a retail sector.

We've then expanded into the healthcare sector, and then later on into commercial real estate and other parts of the commercial market. The mission that we have is really important. We project that cutting energy use of U.S. buildings just 20 percent from current levels could save over 80 billion annually, will also creating jobs and reducing greenhouse emissions. Let's go to the next slide, please.

So since 2008, we have grown and sustained a fairly active and very large membership. We currently have across the alliance sectors nearly 200 member organizations that represent, collectively, almost ten billion square feet of commercial real estate or commercial building space that is owned and managed across key market sectors. And this represents almost eleven percent of commercial floor space nationwide. So together we can have a very big impact.

Next slide please. So on slide six, you can see some of that impact that we're already having in terms of the activities that we have currently active with Better Buildings Alliance members. We have over 50 energy saving activities for participants and members to choose from. We have 13 teams actively engaged in either technical or market solutions that help people meet and set their energy goals. And you know our members are telling us that they are getting better each year.

So of the BBA members, the Better Buildings Alliance members that reported over this previous year, the average annual energy intensity improvement was over two percent, in fact almost three percent reported. So a very, very good set of accomplishments for those are setting and achieving hose goals. Next slide, please. So, currently, we have 28 active members in the healthcare sector accounting for over 400 million square feet of healthcare space that is managed across these portfolios.

And I wanted to do a special callout to our members highlighted in bold here. These Better Buildings Alliance members have also stepped up to take the Better Buildings challenge, the president's Better Buildings challenge, in which they've committed to a ten-year or better improvement – excuse me, a 20 percent or better improvement in energy efficiency over ten years or by 20/20. So ever year, these Better Buildings Alliance members nominate a steering committee.

Next slide. We'll go to slide eight. And I'd also like to give a special shout out and a thank you to our steering committee members for the current two-year period. And I see a couple of you have joined us on the call today, so thank you and welcome. Next slide, please. These steering committee members help us to assure that the Better Buildings Alliance activities are really geared towards in meeting member needs.

So there are specific focus areas, for example, that these steering committee members have worked with us to try and improve in the healthcare space over the next couple of years. Next slide, please. So on slide ten, you see some examples of the teams so that Better Buildings Alliance can join to help them meet their energy saving goals. These are cost-cutting teams that are matrix, so we try and design activities that are relevant not only to a specific sector, but where possible can have the maximum impact across commercial space.

Members can also take advantage of resources developed by peers. And you'll see some examples on the next slide. Just a couple of examples here are implementation models designed by our Better Buildings' challenge partners. These implementation models seek to show how organizations have overcome key barriers, or how they are really getting energy efficiency done within their organizations.

So if you haven't checked any of those out, I encourage you to take a look at some, not only be the healthcare members, but perhaps in other sectors as well. Often we find that members give us feedback that these are very transferable. We also offer a webinar series. Next slide. And there you can see a little bit of information on our webinar series, and what's coming up next. And we try and record these and make them available through our website if you don't happen to be available for one that you see coming up.

And we also invite you to participate in-person educational opportunities. Slide 13 is our save-the-date for our Better Buildings Summit that's gonna be coming up here in Washington D.C. on May 27th through the 29th. Last year, we have over 600 participants, this year we expect over 800 Better Buildings partners and stakeholders that will be there to share efficiency strategies, and give you some of the latest on the cutting edge research and development going on here at DOE as well.

So early registration for Better Buildings members and partners is actually going to be opening very soon, next month on December

2014, so save that date. More of these services are available on our website. You can see that link on slide 14. And if you go to the next slide, slide 15, if you're not already a member, but you've joined us today, we hope you'll consider becoming one. It's easy to sign up, you can just go to our sign up form, give us a little information about who you are and what your energy goals might be, and we'll schedule a call.

Slide 16, please. It gives you various ways that you can stay in touch with us through the alliance. If you're not available to join us for a member call, you can join us on LinkedIn. If you click there, you can actually sign up now. And this is a fun platform because not only do you get to hear from us, but you get to hear from other members within the group. And it's leveraging a platform that many of us are already connected to.

If you happen to be the tweeting type, you can also follow us on Twitter, like us on Facebook, or sign up for a plain old-fashion Better Buildings bulletin and get us by e-mail. If you happen to favor in-person communication, you can look for us at one of these upcoming events that we plan to be at. Slide 17. So with that, welcome again. Thank you for joining us today. And I'm gonna turn it over to my colleague, Andrew Mitchell, to begin giving you some updates on our technology activities.

[Brief pause during technical glitch]

Andrew Mitchell: Hey everyone. Sorry about that. How is my audio now?

John Jameson: Sounds good, Andy.

Andrew Mitchell: Okay. Great. So what we're gonna do now is go over to the technology side of things. And what I'd like to do is start sort of an overview of the tech teams, and really just the BBA in general. Just earlier today, I was in an all-hands meeting for the Department of Energy office of energy efficiency and renewable energy, EERE, as we say. And we started by reiterating the mission of our office to create sustainable American leadership in the global transition to a clean energy economy, and I think that really relates to the tech teams and certainly to healthcare given the amount of energy that we use.

So the role of the tech teams is to synthesize this wide world of technical innovation and technical opportunity that's out, and it may be usable, and make that information useable for our BBA members and their peers. Because we know that those of you on

this call really are leaders in the energy efficiency and energy strategy world. So what you do in your facilities is going to be copied nationally, and even internationally, and we want to be a leader in that. We also recognize and thank you for your effort so far.

So there is a lot of technical progress going on, and a lot of the opportunity to implement energy efficiency measures. So one thing that we hear a lot from our BBA members is that in many cases, that a primary source of information is coming from sales reps, so I know that everyone in the healthcare world is approached regularly from different companies trying to bring new technologies to your facilities.

And certainly nothing against that, those people are central to the deployment of new technology. But if you think of it this way, if you ask a hammer salesman to recommend a tool, that salesman is probably gonna recommend a hammer. So what we do on the BBA, and the BBA tech teams, is try to be an objective source of information. And that information comes from peer-to-peer learning, as well as from our own experts. The technologies that we address in the tech teams are determined by input from BBA members, as well as our prioritization of high impact technologies.

Across these tech teams, basically we divide them into eight. There are eight tech teams; we divide it by category or industry, and each of the teams is led by a subject matter expert from either one of our national labs, or navigating consulting. And these tech team leaders are based around the country. In addition to those eight teams, one of the most exciting components of the tech teams is the opportunity to participate in real world demonstrations.

So I'm on slide 19 now. As I was saying, many alliance members are demonstrating new and innovative energy-saving technologies through these real building demonstrations. These tech demos are an opportunity to try viable, market-ready, cost saving technologies. Those are the three important criteria for these tech demos. These are not experiments. They're not pilot programs; they're viable, market-ready and cost-savings technologies. Those host sites work directly with manufacturers, Department of Energy, and national experts.

And the tech demos provide members with a chance to achieve the next generation energy savings, and getting recognition for their innovative approaches to energy reduction with third party expertise. Basically if you do one of these tech demos, you

definitely have yourself an article in your next disclosing newsletter, in your next all-organization newsletter, something like that. This is gonna be pretty cool. It's gonna tell a good story.

And I'm gonna go through these three real quick. We are looking for sites for these to host, so as I talk about them just consider if your facility would be a good opportunity. The first one is probably the most relevant to healthcare. The invariant HVAC load reduction. Basically this originally grew from a carbon sequestration project. It's a demo that addresses air recirculation in buildings, which is really important of course in healthcare.

It takes advantage of a membrane technology to reduce the amount of outside air in an HVAC system. In any HVAC system there is a certain amount of outside air that has to be brought it. When it's brought in, it has to be either heated or cooled, and that obviously takes energy. So this technology will reduce that amount of energy. Pretty straightforward…

The next one: Building IQ predictive energy optimization. This is basically data modeling to come up with an energy model for building automation systems, evaluate building performance trends and other factors like weather info, occupancy building performance and so forth. Preliminary demonstration show at 18 percent average reduction in HVAC systems savings; that's 1-7. So definitely opportunity there as well.

The last one probably is not as relevant to healthcare. It is a micro combined heat and power. It would be for smaller facilities that use a lot of water. So think like full-service restaurants or something. So probably not as relevant, but any questions on those interests, check in with us via e-mail at the bottom of the slide, or discuss with your account manager.

Okay. I'm going to the next slide: slide 20. Really what this is here is a save-the-date. It is spring in the Smokey Mountains; we'd like you to join us for a discussion on envelope retrofits. So this will be a subject of upcoming tech demos. Basically anything that has to do with advanced windows, wall installation, roofing retrofit technologies. Envelope technologies are currently under utilized and in need of more development to drive down costs if you need installation. So I'm definitely planning on being at this at Oak Ridge, and we want to get your perspective also, so please consider joining us.

I'm on the next slide now: 21. And I just want to go through a recent tech demo report or a set of reports that was put out about multi-load laundry demonstrations. This is something that's probably very relevant to many healthcare facilities. We had three demonstrations across the country: Grand Hyatt, Seattle, Charleston Place in Charleston, North Carolina, and Rogerson House in Boston. We recently published reports on these exciting developments.

The results pretty much speak for themselves on the first two demonstrations. Grand Hyatt with significant water savings, over $11,000.00 a month, and with a payback less than a year. That's a pretty outstanding set of figures there. Charleston Place Hotel, similar, significant water and heating savings, and payback of under three years. The Rogerson House, this is where things get a little interesting. In this case, one of the stakeholders involved with arrantly increased water usage, and that unfortunately offset the energy savings.

So it's a great lesson in the real world of implementing these measures. They didn't use any more energy; they saved just a little bit. But basically really good savings were possible with this ozone laundry system, they are not assured. The customers and suppliers have to be aware of the implications of changing those cycles. Unfortunately because Rogerson House is in Boston, there is higher water and sewer rates, and the higher water usage cancelled out the energy savings.

But in another location with lower rates, that might not have been the case. Anyway, it goes with the territory in these demos. We are playing chess and not checkers when we do this, and there is gonna be lessons to be learned. So those reports can be found on those two links at the bottom. Oh, I should point out too that these links will all be live if you access the presentation later as a PDF.

So we'll go to slide 22: the lighting and electrical team. Lighting is a high profile and high value efficiency measure. I mean if you think about it, it literally is lit up and in your face as a user, as a customer in some cases, or just as a worker going to your job everyday and living and working in these facilities. Lighting makes a first impression. It's also something that can be used kind of an indicator, certainly for energy professionals, we use lighting as an indicator. If I walk into a lobby of a building and I see that they're running some old timey linear fluorescent T12, that's a pretty good indicator that the energy strategy of that facility is very advanced, so something to keep in mind.

You can kind of think of it like a canary in the coalmine if you need a popular reference. Anyway, looking at the lighting team, and the highlights for 2014, the LEEP campaign really jumps off the page. It's been a highly successful effort to influence the uptake of lighting, energy efficiency, and parking. You can see the website at the top there, it is hosted off of the DOE servers because it's a joint effort between a lot of different stakeholders.

The graph on the top right, you can see there, it's small. But all you really need to see on there is that it's a very clear trend up and to the right, and it is taking off like wildfire. So we certainly wish that all the projects had graphs that looked like that. The short version there is that this is – it's a great story. As you can see on the bullets there, 120-million kilowatt hours saved, over ten million annually. We're well on our way to surpassing our five hundred million square foot goal by next March.

Twelve organizations recognized for leading the way in efficient parking at the April 2014 IFMA Conference. Energy savings as high as 90 percent in some cases, and significant maintenance savings, too. And I should point out that 90 percent reduction comes from both new lighting technologies and controls. So when I say controls, things like occupancy sensors, daylight sensors, other ways to reduce use overall.

So most of those award winners took full advantage of both, not just LED, a big savings from controls, from different approaches like fluorescents and induction technology. Next point there under current activities, updates coming to the BBA lighting specifications underway. So these are – this is basically your chance to influence what the campaign, what the lead campaign will recommend in terms of lighting performance, and those specs will basically become the de facto standard for outdoor lighting very soon.

So if you have feedback on that, challenges, success stories, barriers, we would certainly appreciate that. You can direct that feedback to Linda Sandahl. I forgot to point out that Linda is our technical team lead. Linda is based out of Portland, Oregon and the Pacific Northwest National Lab. Her contact info is at the top. Let's see here. So I want to jump forward to – well, I'm gonna focus on the upcoming opportunities. This is kind of an early warning.

Coming in March 2015, we're gonna roll the success LEEP campaign into the interior lighting campaign. So we're gonna take it inside. The ILC will be launched in March. Again, this is sort of an early warning. But the goal of the campaign is to help storeowners and managers save energy and money by adopting high efficiency troffer lighting solutions. Similar to LEEP campaign and design, it's a recognition and guidance program and it will be specific to troffer lighting solutions.

Over half of all commercial fluorescent lighting fixtures are recessed troffers. And by adopting the performance levels recommended by this campaign, building owners can save up to 50 percent of their troffer lighting costs. Coming up on that, there is a webinar on December 4th that is posted on the Better Buildings Alliance's event calendar, that has to do with next generation luminaires indoor design competition winners, and there is another workshop, home workshop on December 11th…a conference call.

Basically it's a starting point to discuss elements of the BBA model, technical specs for the interior lighting campaign. If you have an interest in that, reach out to myself or Linda, and we'll put you on the roster.

Okay. I'll go to the next slide: 23. Great. And we're gonna look at the space conditioning team. The space conditioning team is led by Dr. Michael Deru. He is based out of the National Renewable Energy Lab in Golden, Colorado.

Big highlight for the space conditioning team in 2014 is the advanced RTU campaign, advanced roof top units. These are the roof-mounted air conditioning HVAC systems. So they'll probably be in health – in healthcare, they're probably most applicable to office buildings or anywhere that you see those roof mounted systems. ARC has also been a great success. Despite the lower profile of RTUs, I mean you can imagine that the LEEP campaign has the advantage of literally having light-up energy efficiency…

RTUs, for that matter, don't light up, and they pretty much never seen. They kind of hide out on the rooftop, and as long as they're working well, nobody notices. So part of the major goal of the RTU campaign is to promote recognition for that. Because as you can see, savings: 300 gigawatt hours, and over 33 million annually. So almost triple the success of the LEEP campaign, and the LEEP campaign is wild success by any standard.

The RTU campaign is a join effort, so just like LEEP, the website is posted off of the main BBA or DOE website. You can see that new resources hyperlink will be available. That will link up to some really great new resources appropriately on the ARC website. Just yesterday, we had Kurt from Adidas speaking on a webinar on the advanced RTU campaign. And he gave a great overview of the process. That company went through and gave some of his own color commentary on his motivation, the challenges and success of working internally with that organization.

So although it is a retail application, in a lot of cases, the technology are the same, and in a lot of cases, the barriers that he was coming up against are gonna be very similar to, in many cases, those market barriers that we'll hear about next. So another resource you can pull up on that new resources tab. Let's see, current activities. ARC is continuing through 2015. We're gonna get a nomination categories posted in January for participants.

And then two other forthcoming products that you can take action on by downloading Best Practice Guide for RTUs is way to put a dollar figure on the value of updating those RTUs, and then an HVAC system, a resource map, a good primer for anyone who wants to get an intro.

So we'll go to the next slide: 24. Okay. The peer exchange for energy savings opportunities in ventilation setbacks for healthcare facilities. Again, sort of an early warning on this, I just want to get this on everyone's radar that we are going to – we're planning for this winter to basically – it won't be in person, it'll be a conference call or something like that. But we'll take a look at night and weekend setbacks, a major source of savings potential especially in healthcare environments with high outside requirements. So keep that in mind; more news to follow. So keep that in mind. More news to follow.

Two technical guidelines coming out that really could change the way HVAC is installed and operated in all facilities, not just healthcare. I can say that from what I understand, they're very complicated documents. They're designed by and for engineers, and this is sort of advantage of the tech team that will help Dr. Michael Deru to basically translate for those of us who don't have technical backgrounds. So we're certainly glad to have Michael for that.

The ventilation best practice guide for retail probably doesn't have as much of an interest for healthcare. And we're now recruiting

sites. I mentioned those two tech demo opportunities at the bottom. Again, please do keep those in mind and let use know if you have any interest.

We'll go to the next slide: 25, the laboratories team. So again one of the eight technical teams, this one focuses not so much on a specific technology, but on an industry or category in that laboratory. It's led by Craig Ray at Lawrence Berkeley National Lab in California. And certainly, well, there are labs everywhere.

Healthcare facilities have quite a few of them as well. And as Craig will point out, the main thing driving energy use in labs is ventilation. There is a lot of outdoor air that's required, so heating and cooling are always going to be really large loads. In terms of square footage, a typical lab uses about three times the amount of energy of the typical office.

And an average single fume hood, including the mechanics and operation above it, will use the same amount of energy as three and a half typical residences. So there is – in terms of square footage, labs might not be massive, but in terms of energy use per square foot, they are very high. 2014 highlight, there is quite a few there, and most of those are yet to be released, but will be coming soon. The fume hood study report goes into depth on ventilation, and how it relates to fume hoods and minimal ventilation required for labs, and in conjunction with thermal loads, either heating or cooling, which we disused.

Another great resource forthcoming: navigating building fire codes, addressing the myths about fire codes and labs. And more the more powerful part about both of these guides is if they have case studies. In the case of fire codes, UC Irvine has done a comprehensive study and related that to us. The entire UC system has been really fantastic partner in this. Let's see here. Let's get down to the current activity; second bullet there, collaborating with I2SL, the International Institute for Sustainable Labs is a nonprofit organization with very similar aligned goals to the labs team.

Not exclusively as technically focused because we are on the labs team, but anyway certainly a significant overlap in terms of membership, in terms of activity. So we just want to take full advantage of that moving forward. So that figures in prominently to our plans for the future also. As we move forward, another product we're looking to make are specifications for safe low energy labs. Labs are being retrofitted right now, and there is

really no accredited program or standard that people can be trained to understand.
When it's built, when it's implemented, when it's operated, basically how these facilities work and what their needs are, from project planning, stakeholder engagement, to execution. So the lab team will work on a product to address that. We'll probably work closely with the workforce-training component of the market teams as well. We'll get to that in a minute. Next slide: the plug and process load team. This team is led by Rose Langner of the National Renewable Energy Lab.

Plug and process was explained to me very well as if you were a giant and you picked up a building and you shook the building. Anything that was plugged in and fell out, that's what would be related to the plug and process load team. So in some cases, it's hard to measure. In some cases, it's overrated, but it is nonetheless a very important part of any facility's energy use. 2014 highlights for the team completed a plug load study in healthcare.

Certainly very interesting to this group, and I encourage everyone to take a look at it. Again, that link will be live on the PDF, or you can pretty easily Google search it. PPL team has worked with Massachusetts General Hospital and Sunny Upstate University, and looked at demonstrating savings potential with nighttime idle modes. There is a really tidy key takeaway summary section on this. It's a quick read and very interesting for this crowd.

Other publications came out in the last year; again, you can link to those. And recently the PPL team delivered an advanced power strip specification to DOE, and that's in draft. And that'll be, again, a pretty straightforward document, four pages or so of text that you can use for procurement means. If you are buying power strips for a large facility or in any kind of any large volume that will be a helpful document.

Next slide, please: current activities for the PPL team. Basically we're going to be focused on how to promote that advanced power strip document. And we'll work with building owners and manufacturers certainly with healthcare, and we'll also develop a how-to guide for installing and bringing usage up for those. The next quarterly call for the plug and process load team, if anyone would like to join us, we would certainly love to have you, is December 3rd. That's posted on the BBA calendar, and you can also contact myself or Rose Langner to join.

Plans for the future, the primary plan for the future that I'm really excited about is that Rose and her group are making over the website, so they're gonna make that a very good resource, kind of a comprehensive clearinghouse for resources related to plug and process loads. So keep an eye out for that in the near future. Lastly, ENREL – actually, you know what, I'll skip that. Let's move forward to the next slide, the energy management information system team, EMIS. This team is led by Dr. Jessica Granderson, also at Lawrence Berkeley in California.

In terms of 2014 highlights for EMIS, a lot of what they were focusing on and what we were focusing on was getting members all on the same page. EMIS, in a lot of cases is kind of incognito, unknown, and can be intimidating at times. So most of the focus on in 2014 was basically to level the field, get people started up so that in 2015, we can take kind of a deeper dive and go into more nuance approach.

So across the collection of resources, and you can see those hyperlinks there. The common frame of understanding is the goal to the extent that's possible. So I would just point out the first link there, the crash course webinar is a great resource for anyone who wants to sort of dip their toe in here. It basically includes six high-level steps to establishing more intentional process when it comes to selecting, adopting, implementing an energy management information system.

It takes a look at broad level costs and savings, and is basically just a great primer, a great excellent starting point. In addition to that, the team put together a list of existing resources, this synthesis of existing resources. So, again, a great resource place to start kind of a library and a regional guide to EMIS incentives. The next point there, demonstrated six EMIS systems. This was really exciting in the team calls.

They actually had vendors come and join the calls and demonstrate the products that they use and how facilities can take advantage of that to save energy, kind of back to the idea that vendors and shareholders have a lot of info to share. The EMIS team really embraced that and invited those companies to demonstrate their products in a more objective environment. We selected those products according to member interests, the ability to be demonstrated easily via that medium, and the criteria for capabilities to be met.

The last point here, just recounting that the team does keep track of member participation and advances with their EMIS products. All the members have been pretty active, and actively looking for ways to maximize their value. All-stars from the EMIS team, include GSA, part of the government, Whole Foods Markets, the county of Kaua'i in Hawaii, and Wendy's Restaurants. We'll go to the next slide. Current activities, joint sector webinar coming up on December 9th. This is with the retail and food service sector, but really a lot of EMIS concepts have very broad crossover, so I certainly would encourage anyone with an interest in the EMIS to attend that.

A lot of the concepts do span different building types, so that'll be definitely worthwhile. In terms of the future, we need to increase the focus on pure learning and guest presentations in the meetings, and another exciting thing coming up; there is the valuation of public sector utility pilot. This relates to a healthcare facility in Maryland to join a pilot project with BBA member, Maryland Energy Administration, and the utilities in that region, BG&E and Pepco. They're gonna use – do whole billing analytics for 2015 and provide direct assistance to that member.

Last future point here is that upcoming projects are gonna take a little look at more holistic approach to data management, and how that can be used across the entire operation, not just facilities or over finance, or incorporated into other aspects, so kind of an overview on that holistic organizational use of EMIS. Upcoming opportunities, we mentioned this tech demo opportunity with Building IQ at the beginning. Again, encourage everyone to consider participating in that. It does have a good crossover with healthcare.

Next slide, please. Slide 30: the renewable integration team. The team is led by Jay Paidipati, one of our consultants from Navigant. He is based out of Boulder, Colorado. The big highlight from 2014 was publishing the commercial solar decision guide. So this is basically a soup-to-nuts account of what it takes to have solar installed in your facility, and jumping ahead a little bit to current activities.

We are developing sector-specific solar decision guide, and that will include healthcare, so we will take the lessons learned from that overarching commercial solar decision guide, and focused it on healthcare. That is something that I think will definitely be of us to any facility considering a solar installation. Also along those lines, if anyone has experience with solar installation, we're

looking for feedback on the interaction between solar installs and roof warranty repairs that we've heard expressed as a concern particularly from any facilities department, and what we want to address in these guides.

Upcoming opportunities, meeting on December 2nd at 3:00 p.m. Eastern. This will feature Andy Walker from NREL, National Renewable Energy Lab, and it'll focus on operation and maintenance of solar installation, so most of interest of people to people with existing solar. Again, we're looking for case studies. If any of you on the call has solar installations, we would love to talk to you. You can reach out to me directly, or Jay's contact info is at the top.

The near-term focus for the renewable integration team is to focus on those sector-specific guides, but we do have some space on the docket this spring so we can react to member interests. We're definitely interested if anyone has feedback or direction for us, please consider joining the call, joining the team, reach out to Jay or myself. Let's go to the next slide: food service. Food service, this team is kind of, to be honest, overwhelmed by – well, appropriately, restaurants, and, in some cases, grocery and deli prep areas.

But institutional kitchens and cafeterias like those at hospitals and universities would definitely make outstanding contributions and certainly be able to take away a lot of learning from the food service technology team. So I would encourage all those facility managers out that that have significant cafeterias in your healthcare facility, consider joining the food service technology team, or just drop in on some of our meetings. The technical lead is Dr. Rich Shandross, also is a Navigant consultant. He's based out of Boston.

2014 highlights have included collaborating with the EPA Energy Star Program to come up with a standard energy star measurement for food service. Current activities and ways to get involved, we did release a energy management system guide for food service-specific. But again, just to reiterate, EMIS applies very broadly to a lot of facilities. The full technical report is available on the BBA website, definitely worth a look. A lot of the lessons there will apply to healthcare.

Plans for the future, we're gonna break out some of the learnings from that document, and again make them a little bit more digestible. Those resources will be forthcoming and will be

certainly applicable to healthcare. So go to the next slide. That wraps me up for the tech teams. I just want to reiterate that the materials are all available on the website in PDF form. You'll be able to click through to them.

And at this point – oh, I should mention that all the tech teams that are listed on that website also. So we skipped, I believe, refrigeration. So anyone with an interest in refrigeration, there is a whole another tech team dedicated to that. I'll hand it over to you, Mr. Andrew Schulte.

Andrew Schulte: Well, thank you, Mr. Andrew Mitchell. Hi everybody, and thanks for having me on your call today. My name is Andrew Schulte with ICF, and I'm actually sitting in today for my colleague Deb Cloutier at JDM Associates, who leads up the market solutions initiative for the BBA program, but I've been closely involved, and have presented on calls like this in the past. So I am here today to give you the update on market solutions activities. So John, if you could advance one slide, please. Thanks.

So in general, the goal of the markets solutions team of the Better Buildings Alliance is to help members identify non-technical barriers to energy efficiency, and to develop and deploy solutions across their portfolios quickly and at scale. So currently the market solutions team is organized into distinct focused areas based on member feedback as to the most pressing market needs. So the first activity, leasing and split incentives, through this work, we are seeking to leverage the tenant/landlord relationship to help accelerate energy efficiency.

In terms of the finance and appraisal activity, we're focusing on building the businesses case for more investment energy efficiency, and helping to ensure that energy performance is incorporated into a buildings evaluation. On the workface training side, we are helping ensure that the market has a skilled and qualified workforce that's able to respond to the growing demand for, and to maximize the energy performance of commercial buildings.

And then, finally, the data access focus group works with members to develop resources and share best practices on how to engage with utilities to gain access to streamline whole building energy consumption, preferably on a monthly basis for the purposes of benchmarking. So that's the high level overview of what market solutions has going on, so let's dig down into a few of these activities a little deeper. John, if you could advance.

All right, so tons of the investment and appraisal activity, there is increasing evidence showing the financial benefits of high performing buildings, and this is seen not just in reduced operating costs, but also in improved indoor air quality, occupant and patient comfort, and extended life of equipment. And all the same, you know, too many investments in energy efficiency that have high rates of return and short paybacks are passed over, and we're trying to address why this happens.

Currently, the Better Buildings Alliance is working to identify additional opportunities to accelerate investment in energy efficiency, as well as ways to encourage the commercial appraisal industry to consider energy performance during evaluation process. Kind of falling under this umbrella, DOE is continuing to enhance and deploy their building asset score. This tool uses a 10-point scale to evaluate the energy efficiency of a commercial or residential building's physical characteristics and major energy-related systems.

Users will enter information about the building's structure and use, such as number of floors, or in patient, lighting systems, mechanical components, envelope components, and operations. DOE is currently seeking out organizations to pilot the asset score. So for more information on how you can get involved in this effort, we certainly encourage you to contact your BBA account manager.

Additional activities in this area include the development of a research plan that's seeking to identity perceptions and misconceptions regarding the value of investing in energy efficiency. And what we're really trying to do here is understand what may be preventing organizations from dedicating capital to upgrades. Our research is going to grow the body of evidence that demonstrates the financial benefits of energy efficiency investment, helping to build the business case for efficiency investment.

And then finally under this activity umbrella, we are also going to be developing a training course for commercial appraisers. Specifically, this course is going to build on existing greens trainings for appraisers by demonstrating how data tools, such as Energy Star's portfolio manager, the building asset score, and DOE's building performance database, can assist appraisers in determining their value of energy performance in a specific building.

So a lot of projects planned underneath this activity umbrella, and if you have any specific questions, or a specific desire to get involved in one or more of these efforts, please do contact either your account manager or Deb Cloutier, the market solutions lead. And all of that information will be provided in the slides. So moving on, John, talking a little bit about the workforce initiative, the Better Buildings workforce initiative seeks to develop a skilled and certified clean energy workforce.

There are numerous certifications available related to energy performance and commercial building operation, but many of these have disparate and varied requirements. And so as a result, the market lacks a clear indication of what constitutes a qualified professional. So the workforce initiative is working with industry practitioners, as well as the National Institute of Building Sciences to address this barrier by developing voluntary national guidelines that improve the quality and consistency of commercial building workforce credentials for energy-related jobs.

This program is currently working with stakeholders, many of which are BBA members, to develop skills, standards, circular and training. This initiative will over the course of the next month and over the coming year, will turn to BBA to help drive market demand for these new credentialing guidelines as they are released. So definitely stay tuned, and we will proactively keep you aware and apprised regarding the progress of this effort.

So finally on slide 36, we're gonna talk a little bit about the world of data. Access to streamlined whole building utility data has been identified as a major barrier to implementing energy efficiency measures because as many of you probably know, you can't manage what you don't measure. So the data access team under the BBA market's solution group is working to inform Better Buildings Alliance members about the wide array of initiatives that are out there in that facilitating access to building performance data, and also helping you to integrate with those efforts as appropriate.

So what does this mean? This means that we plan on working with BBA members to help you articulate and communicate the critical role that data plays in your energy management efforts, and helping you to communicate this need to entities such as cities and utilities that may be in a position to help facilitate access to your energy data. One venue in which it's gonna be especially important for BBA members to communicate their needs is the

Energy Data Accelerator, which some of you may have heard about.

This ongoing effort, which is about to wrap up year one of a two year lifespan, it's a partnership between utilities, local governments, and DOE, in which 20 city utility payers have committed to develop and implement systems for providing whole building data to commercial building owners, who are seeking to benchmark. The data accelerator really provides a critical platform for commercial building owners and operators, such as yourselves, to help utilities and cities understand the importance of access to whole building data for benchmarking.

So in other words, this is really an opportunity for you to help your cities and your utilities better understand what does data access mean to you, why do you need, and how can they help you get it? Along these lines, I'd point out that a group of BBA members has already authored a letter of support and a position statement that they send to the EDA, the data accelerator, and it's actually posted on the data accelerator website, which you can read and we can provide you that link as follow-up. Other BBA members are definitely encouraged to emulate this approach, whether individually or in groups.

We feel that there would also be value to Better Buildings Alliance members in bringing this issue back to their respected industry associations, and then working with your association, as a whole, to offer a letter of support to the accelerator explaining the importance of streamlined access to whole building data. And, finally, as part of the accelerator effort, the participating cities and utilities have already agreed to convene stakeholder engagement processes around this topic of data and data access.

So this provides and opportunity for BBA members to participate in their local markets. So to the extent that you have a building or buildings located in one or more of the cities that are currently participating in the Energy Data Accelerator, we certainly want to help put you in touch with those city reps and those utility reps to make sure you're part of the conversation. And throughout 2015, we are going to continued to identify ways in which Better Buildings Alliance members can continue to encourage utilities and cities to pursue access to whole building energy data.

And that could include, as we've mentioned, offering additional letters of support, position statements, or even creating resources to help share best practices on how you've been able to engage with

your local cities and utilities. So that about wraps it up for my market solutions overview, so thanks for your time. And with that, I think I will turn it back over to John.

John Jameson: Thanks Andrew. I'm actually pass it over to Kristen to kind of wrap things up here at the end.

Kristen Taddonio: All right. Well, thank you very much again for your time and attention. We do have a few brief moments here for questions, so if you have not already and you have any questions, type them into the questions box, and John will help us read out those questions. And in addition, I just wanted to give you that contact information one more time. Please do not hesitate to get in touch with us if you would like to learn more any of the activities or options discussed today. Thanks very much. John, do we have any questions?

John Jameson: Yeah, we've got a number of them here. So I can read the first one off. This seems like it will be for you, Andy. The first question here is: In regards to the unvaried HVAC systems, does the membrane limit the amount of air coming in, or does it do something else? Also, does membrane filter the incoming air, reducing external air pollution?

Andrew Mitchell: My understanding is – *[crosstalk]*. I'm sorry, what was that?

John Jameson: I was gonna say, let me know if you need me to read that again.

Andrew Mitchell: No, no, I think I get the question. It does limit intake of external air just because it is not required. The membrane technology, itself, removes volatile organic compounds and CO2 from existing inside air so that the circulated air is considered fresh by standard. And beyond that, if there is more technical questions, if that person asking that question has more interest, I'd be happy to put them in touch with the researchers that are directing that project.

John Jameson: Great. We've got another one here, and it looks like we've got a couple that might be for you, Andy. So the next one is about the lighting team, and the question is: Is the troffer lighting campaign about moving to recess the troffer lighting, or moving away from troffer lighting in buildings?

Andrew Mitchell: Primarily it's about retrofitting existing troffer lighting. There certainly will be an opportunity to discuss the other two scenarios that you lay out there. A major goal of the campaign is that peer-to-peer learning. So there will be a lot of opportunity to discuss

different options. But the primary goal of the campaign is retrofitting existing troffers.

John Jameson: Great. Okay. And another question: If I've already made lighting upgrades to parking garages recently, is there a reason to participate in the LEEP Campaign, is it just geared towards those evaluating upgrades?

Andrew Mitchell: I would definitely take a look at the website, and take a look at the resources that are listed there. If that person has already done a project, there could still be some lessons learned in terms of essentially utility rebates. Sometimes there's time limits on those. Operation and maintenance is big. Basically the LEEP Campaign makes the experience of many, many other users available, so it's definitely worth going to the website. Thanks.

John Jameson: Sure. And we have a couple labs questions here. One is: How do the lab best practice guides build on or relate to the UC Irvine smart lab approach? And I think Kristen might have something to say on that as well.

Kristen Taddonio: So we definitely try and leverage. In fact, one of our implementation models from the Better Buildings Challenge is UC Irvine's smart labs approach, and we definitely try and integrate the maximum extent possible of all of our Better Buildings Challenge resources with the activities that we do in the alliance.

Andrew Mitchell: I have nothing to add.

Kristen Taddonio: Okay.

John Jameson: Okay. And another follow-up is: If we lease lab space, are there resources that would still be helpful from the laboratory's team, or is it just geared towards those who own laboratory space?

Kristen Taddonio: Could you repeat the question, please?

John Jameson: Sure. The question is: If we lease laboratory space, would the laboratory team resources still be helpful, or are they designed for those who just own laboratory space?

Kristen Taddonio: I think it would be hugely helpful, partially because of a lot of our activities and resources within the labs teams focuses on user behavior, and things that are low and no-cost strategies that can really save energy, even if you don't own it and aren't making sustainable investments in it. Anything to add to that?

Andrew Mitchell: Yeah, I think a lot of those, even if you're not paying the energy bill for your leased lab, and you very well may be, a lot of those practices are best practices and should probably be instituted in most labs. In the event that there is a split incentive there, I think there is a lot to be learned from the market solution teams that Andrew Schulte was mentioning before, absolutely some crossover there that could be applied to the lab tech team solutions.

John Jameson: Great. Thanks. And actually that's a perfect segue over to Andrew. One last question we have here is: Andrew stated that the asset score will account for building use and operation. Did I misunderstand what he said, or will the asset rating account for how a tenant may use the building?

Andrew Schulte: So Kristen, do you actually have anything you want –?

Kristen Taddonio: Yeah, the asset score is actually to normalize out – or not to normalize out, but to look at the as built facility, and not to include behavior-based characteristics that might alter a building's energy. It's just really looking at the building's asset, hence asset score.

John Jameson: Great. And it looks like that's it for the questions unless anyone has a last minute one they want to sneak it before we wrap things up. Now is your chance. But otherwise, I'll go ahead and forward to the end here. I do want to note we have an appendix with the refrigeration teams slides in case anyone wants to look through those and see what resources are available. But I'll pass it back over to Kristen again to wrap things up.

Kristen Taddonio: All right. Well, just thank you very much, and we want to be respectful of your time. So please feel free to reach out, and enjoy your day.

[End of audio]